

Questions:

Anne Surkey

1. Using evidence from the diagram, compare and contrast the processes of mitosis and meiosis.

Mitosis  
creates 2 cells  
w/ same # of  
chromosomes

Meiosis  
creates 4 cells  
w/  $\frac{1}{2}$  # of  
chromosomes

2. Explain how diversity in the reproductive processes is illustrated in the diagram.

In meiosis chromosome # is  $\frac{1}{2}$  of original cell; all 4 cells are different

3. Paragraph 2 uses the words "static" and "dynamic." Using evidence from the text to support your response, explain the meaning of the terms and why they are appropriate in a discussion of genetic diversity.

Static - lacks change  $\rightarrow$  no change in a species  
can mean a single disease can wipe a species out (extinction)

dynamic - constant change  $\rightarrow$  new genetic variation

4. Compare and contrast how genetic diversity is achieved in mitosis and meiosis. Cite text to support your answer.

Genetic diversity is achieved in mitosis only, if there is a mutation during cell division (p 3)

Genetic diversity in meiosis can occur during crossing over (when chromosomes can overlap or recombine) creating new combinations (p 4)

5. Explain the relationship between the introduction in Paragraph 1 and the phrase ".....offspring more fit than either of its parents" used in paragraph 5. Support your response using evidence from the text.

P1 states the type of reproduction performed has consequences for the genetic diversity of the next generation. It goes on to say in P5 that during sexual reproduction 2 haploid cells are joined to create a unique combination of genes that may be 'more fit.' The consequences of this could be that the new offspring may have a better set of genes to battle things such as disease or disorders.